REMARKS

Amendments to the Claims

Upon entry of the foregoing amendment, fifteen (15) claims are pending in the application. Of the pending claims, five (5) claims are independent. New claim 73, which is an independent claim, has been entered.

Withdrawal of Restriction Requirement

Applicant gratefully acknowledges the Examiner's reconsideration and withdrawal of the restriction requirement, which withdrawal was precipitated by Applicant's entry of dependent claims 69-72 in the response to the restriction requirement.

Claim Rejections under 35 U.S.C. § 103

1. Rejection of Claims 59-60 under 35 U.S.C. § 103(a)

The Examiner rejected claims 59-60 under 35 U.S.C. § 103(a) as being unpatentable over Blidschun et al. (US Pat. No. 4,680,163) and Bayliss et al. ("The Combined Effect of Hydrogen Peroxide and Ultraviolet Irradiation on Bacterial Spores"). However, as the Examiner has failed to make a *prima facie* case of obviousness, Applicant respectfully requests that this rejection be withdrawn.

Specifically, neither of the references, Blidschun et al. and Bayliss et al., whether alone or in combination, teaches or suggests the step of "spraying" a photosensitizer as in the present claims. For their part, Bayliss et al. apply peroxide solution to their samples by bathing the samples in a vast excess of solution covering the samples in a lab dish. Thus there is no teaching

or suggestion in Bayliss et al., either by itself or when combined with Blidschun et al., to apply photosensitizer solution by spraying.

Blidschun et al. not only fail to teach or suggest spraying of solution onto a surface, but in fact teach away from this step. Briefly, the method of Blidschun et al. is to disperse the decontamination solution into very small droplets (<10 μm dia., preferably 2-4 μm; col. 3, lines 32-33) using ultrasonic energy; these very small droplets are then electrically charged using corona discharge (col. 4, lines 43-47); the charged droplets are then carried to the 'precipitating head' where they are 'deposited' on the surface (col. 4, line 67 through col. 5, line 3). In an alternative embodiment, the droplets are charged at the 'precipitating head' where they are deposited on the surface (col. 5, lines 34-56).

As is clear from the Background section, however, Blidschun et al. teach away from 'spraying' photosensitizer on a surface, stating that "[t]he inability to obtain complete wetting [of a surface by spraying] is attributable to the fact that conventional spray nozzles produce droplets which have diameters in the range of between 50 and 150 μm." (col. 1, line 67 through col. 2, line 2).

In contrast, in the present application it is stated that for droplets to fall onto 'a surface', as opposed to remaining airborne to decontaminate 'clouds', the droplets should be greater than 50 μm diameter (paragraph [0086] of the published application, Publ. No. US 2004/0219057). In contrast, Blidschun et al. teach away from spraying with droplets in a size range of 50-150 μm

diameter (col 2, line 2); see also col 3, lines 17-23. Instead, Blidschun et al. teach a requirement for droplets being less than 10 μm diameter and preferably 2-4 μm diameter.

Thus, when considered alone or in combination, Bayliss et al. and Blidschun et al. fail to teach or suggest the step of "spraying" as in claim 59.

Even if the cited references were to be combined to produce the claimed invention, at the time the invention was made one skilled in the art would not have thought that there was a likelihood of success of the combined teachings producing the claimed invention. In particular, it would not have been certain to one skilled in the art that applying a photosensitizer solution to a surface followed by application of light to the wetted surface would lead to decontamination of the surface as in Bayliss et al. That is, it is unclear whether the decontamination methods of Bayliss et al., which were conducted in bulk solution wherein the target bacterial spores were continuously bathed in a vast excess of decontamination solution, would still work when a thin layer of solution was applied directly to a surface.

In addition, Blidschun et al. teach against the necessity or desirability of applying light to decontaminate a surface wetted with a sterilant, since Blidschun et al. reported satisfactory results from their method of electrostatic delivery of smaller droplets than are achieved through conventional spray methods.

Claim 61:

The Examiner rejected claim 61 under 35 U.S.C. § 103(a) as being unpatentable over Richard (U.S. Pat. No. 5,135,721) and Sizer et al. (U.S. Pat. No. 5,843,374). However, as the

Examiner has failed to make a *prima facie* case of obviousness, Applicant respectfully requests that this rejection be withdrawn.

The cited references of Richard and Sizer et al., when considered alone or in combination, fail to teach or suggest all of the elements of the claim. Specifically, Richard and Sizer et al. fail to teach or suggest "a temperature control system for heating said photosensitizer with waste heat from said light source." Although Sizer et al. teach the use of a fluid to cool a UV lamp, Sizer et al. do not teach using the heat that is captured from the lamp for any purpose. Furthermore, there is no teaching or suggestion in either reference regarding the desirability of heating the photosensitizer, regardless of the source of heat. The "temperature control system" of Richard is actually an infrared generator 36 for drying items following sterilization, not for controlling the temperature of the sprayed material. Thus it would not have been obvious to one skilled in the art to include a temperature control system for heating the photosensitizer with waste heat from the light source as part of a decontamination system.

Claim 61 has been amended to point out the distinguishing structural features between the cited art and the claimed system. However, given the Examiner's reading of the claim, no new issues are raised by this clarifying amendment and no new search needs to be performed.

The amendments to claim 61 point out that the system comprises "a fluid reservoir, wherein the fluid reservoir contains a photosensitizer solution" and a "spray apparatus" for spraying the "photosensitizer solution". In addition it is stated that "the light source has a

cooling unit operatively coupled thereto". Finally, it is specified that the temperature control system is "operatively coupled to the cooling unit of the light source and to the fluid reservoir".

These additional structural limitations simply make explicit the elements that the Examiner has already taken into consideration when examining claim 61. For example, on page 3 of the 04/18/2006 action the Examiner argues that the Richard reference discloses an apparatus for spraying a sterilant, a light source for illuminating the sprayed surface, and a temperature control system. The Examiner then combines this with the Sizer et al. reference to argue that the combined references would have taught the remaining element of using waste heat from the light source to heat the photosensitizer. Although Applicant disagrees with this interpretation, the Examiner's argument nonetheless shows that all of the amendments to claim 61 were taken into account in the Examiner's search and evaluation of this claim. Therefore, Applicant's amendment of claim 61 will not necessitate a new search.

To provide more comprehensive coverage for this embodiment of the invention Applicant has also entered herewith claim 73, which is a method claim covering this embodiment.

Claims 62-66, 69, and 70:

The Examiner rejected claims 62-66, 69, and 70 under 35 U.S.C. § 103(a) as being unpatentable over Richard in view of Bayliss et al., Dirksing (U.S. Pat. No. 5,863,497), and Wilkie (U.S. Pat. No. 5,238,709). However, as the Examiner has failed to make a *prima facie* case of obviousness, Applicant respectfully requests that this rejection be withdrawn.

In particular, one skilled in the art would not have been motivated to combine the Wilkie reference because it is non-analogous art. See MPEP 2141.01(a). "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446 (Fed. Cir. 1992) (emphasis added). In this case, the Wilkie reference is clearly not in Applicant's field of endeavor nor is it reasonably pertinent to the particular problem with which Applicant was concerned, since Wilkie discloses a method and apparatus "for electrostatically applying a coating, such as a solder mask, to a substrate such as a circuit board." (see Abstract of Wilkie). One who is skilled in the art who was concerned with developing a method for decontaminating the surface of a contaminated object would not have turned for guidance to Wilkie's methods of applying solder to circuit boards.

Claim 71:

The Examiner rejected claim 71 under 35 U.S.C. § 103(a) as being unpatentable over Richard in view of Bayliss et al., Dirksing, and Wilkie as applied to claim 62, and further in view of Sizer et al. However, as the Examiner has failed to make a *prima facie* case of obviousness, Applicant respectfully requests that this rejection be withdrawn.

As argued with regard to the rejection of claim 61 above, Sizer et al. either alone or in combination with the cited references, fails to teach or suggest using waste heat from a light source to heat a photosensitizer solution. In addition, the cited combination of references fails to

teach or suggest the desirability of heating the photosensitizer solution at all, regardless of the source of the heat.

Claim 72:

The Examiner rejected claim 72 under 35 U.S.C. § 103(a) as being unpatentable over Richard in view of Bayliss et al., Dirksing, and Wilkie as applied to claim 62, and further in view of Blidschun et al. However, as the Examiner has failed to make a *prima facie* case of obviousness, Applicant respectfully requests that this rejection be withdrawn.

The arguments against the rejection of claim 62 are already listed above. The additional combination of the Blidschun et al. reference does not change the fact that Wilkie is non-analogous art, and thus the combined references minus Wilkie fail to teach or suggest all of the claimed elements.

Claims 67 and 68:

The Examiner rejected claims 67 and 68 under 35 U.S.C. § 103(a) as being unpatentable over Richard in view of Bayliss et al. However, as the Examiner has failed to make a *prima facie* case of obviousness, Applicant respectfully requests that this rejection be withdrawn.

Specifically, the cited references when considered alone or in combination fail to teach or suggest the claimed element of "establishing an air flow into the exit and out of the entrance" of the barrier. Element 132 of Richard, which the Examiner cited as being equivalent to the claimed "entrance", is in fact a "reversible blower" which is used as part of a proposed gas-based sterilization embodiment. Richard suggests the idea of filling the housing 118 with a sterilizing gas such as ethylene oxide to kill germs. In this embodiment, the gas is stored in a reservoir or

storage unit 120, which is within the housing 118. Reversible blower 132 is used for evacuating the housing after sterilization with the gas. Richard states:

> Sterilizing and coating apparatus 110 also comprises a reservoir or storage unit 120 containing a fluidic sterilizing agent. Specifically, reservoir 120 may contain either a liquid disinfectant of any known type or a bacteriocidal gas such as ethylene oxide and propylene oxide. Housing 118 is sealed to prevent the escape of the gases and is provided with a reversible blower 132 for evacuating housing 118 upon the completion of a sterilization procedure. Cuffs 119a and 119b remain closed about the person's wrists until the housing has been completely evacuated. Blower 132 has an air output extending to a storage tank 134 via a valve component 135.

Richard '721 patent, col. 6, lines 52-63 (emphasis added).

Therefore it is clear that Richard does not teach establishing an air flow into the exit and out of the entrance, since storage unit 120 is within the barrier (i.e. housing 118) and "[h]ousing 118 is sealed." Therefore, any flow of sterilizing gas that occurs originates within the housing 118 and flows out through reversible blower 132, while cuffs 119a, 119b are closed about the person's wrists to prevent the gas from escaping. Furthermore, when the gas is evacuated from the housing 118 by the reversible blower 132, it is pumped into a storage tank 134.

When claim 67 is considered as a whole and in view of the specification, it is clear that the recited "exit" and "entrance" are the places for the object to exit and enter the barrier. Claim 67 has been amended to clarify this point by stating that the barrier has "an entrance and an exit therein for the contaminated object to enter and exit the barrier" and that the contaminated object is surrounded with the barrier "by moving the object into the entrance."

Since these added elements were already inherent in the claim, their explicit entry by this amendment will not necessitate a new search by the Examiner.

As for the rejection of claim 68, modifying the Richard reference to produce the method of claim 68 would render the Richard reference inoperable for its intended purpose because it would be dangerous to expose the bare skin of a person's hands to ultraviolet light having wavelengths between 200 nm and 320 nm.

Conclusion

For the reasons discussed above, applicant respectfully submits that all of the claims are allowable over the prior art of record.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, he is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,

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